SEISMIC SAFETY ELEMENT

GENERAL PLAN
FINAL EIR
CITY OF HAWTHORNE

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GENERAL PLAN

CITY OF HAWTHORNE

July 1975

Hawthorne. [Planning department]

City planning hawthorne
Emerg. relief Earthquakes "

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A. General Overview, Related Elements and Legislation

1. General Overview

The Seismic Safety Element, required by State law in 1971 as part of the general plans for all cities and counties in California (Government Code, Section 65302f), embodies the principal geotechnical component of land use planning. The Seismic Safety Element for the City of Hawthorne has been prepared in accordance with the latest guidelines issued by the Council on Intergovernmental Relations of the State of California in September, 1973. The basic objective of the Seismic Safety Element for the City of Hawthorne is to reduce loss of life, injury, damage to property, and economic and social dislocation resulting from earthquakes, slope instability such as landslides and mudslides, and other soil-related hazards. Seismic hazards specifically needing to be identified and evaluated include susceptibility to surface rupturing from fault movement, ground shaking and realted ground failure.

2. Related Elements

The Public Safety Element which is realted to the Seismic Safety element is principally concerned with flood hazards, fire prevention and control and geotechnical hazards generally, including their identification, mapping, and evaluation. Although seismic hazards are considered, the principal geologic hazards addressed in the Public Safety Element are related to slope instability and soil problems and how they can be avoided or minimized in the planning process. The seismic Safety Element document contains all of the basic geotechnical data and evaluation for the Public

Safety Element. The Open Space and Conservation Elements have significant geotechnical inputs also, relating particularly to mineral and soil conservation and possible open space designation for hazardous geologic conditions.

3. Other Legislation

Other State legislation related to seismic and geologic concerns include the following:

a). Public Resources Code

Sections 660-662 and 2621-2625; these sections require the State Geologist to delineate special studies zones encompassing potentially and recently active fault traces pursuant to the Alquist-Priolo Geologic Hazard Zones Act. Sections 2700-2708; require the Division of Mines and Geology to purchase and install strong motion instruments to measure the effects of future earthquakes in representative structures and geologic environments throughout the state.

b). Education Code

Section 15002.1; requires that geological and soil engineering studies be conducted on all new school sites and on existing sites where deemed necessary by the Department of General Services.

Section 15451-15466; these sections require that public schools be designed for the protection of life and property (Field Act).

c). Health and Safety Code

Section 15000 et seq.; require that geological and engineering studies be conducted on each new hospital or

additions affecting the structure of an existing hospital. Sections 19100-19150; require certain buildings to be constructed to resist lateral forces.

B. Background

1. Geotechnical Findings

The City of Hawthorne and the areas within its sphere of influence are located in a large urban residential, commercial and industrial complex with the City of Los Angeles as its center. In character with this setting, Hawthorne is almost completely developed with residential, commercial and industrial structures. Planning for seismic safety, therefore, will deal chiefly with existing structural hazards and disaster planning and to a lesser degree with the control of new development.

The most likely earthquake-generating faults and, therefore, those of greatest concern in the City of Hawthorne are considered to be the San Andreas, the San Fernando-Sierra Madre, the Newport-Inglewood, and the underground Charnock. Levels of seismic shaking within the City from significant earthquakes on the first two are expected to be moderate. On the Newport-Inglewood fault, however, these levels are expected to be relatively high because this fault zone passes through a portion of Hawthorne. The Charnock fault has not been a factor because of its subterranean location, but it still remains a concern.

Ratings of seismic and geologic hazards within the City of Hawthorne are summarized as follows:

a). Seismic shaking

(1). Moderate from activity from the San Andreas fault and the San Fernando-Sierra Madre fault; relatively

intense from activity on the Newport-Inglewood fault; and moderate potential activity from the Charnock fault.

(2). Possible localized intensity amplification effects, especially in areas with uncompacted fill or soft soils.

(3). Earthquake intensities equal to or greater than those experienced during the 1933 Long Beach earthquakes should be anticipated in the future.

b). Fault Rupture Potential

(1). Generally low, but relatively higher along the Charnock fault and in the northeast portion of Hawthorne nearer to the Newport-Inglewood fault zone.

(2). No distinguishable ground displacements, however, have been found in historic earthquakes associated with the Newport-Inglewood fault zone.

c). Liquefaction potential

(1). Low in most of the City.

(2). Slightly higher in a small portion of the southern half of the City.

d). Tsunamis, seiches, potential inundation because of dam or reservoir failure, other secondary seismic effects

(1). Very low; Remote possibility, however, of local erosion damage and flooding from rupture of water tanks and reservoirs.

e). Slope instability

(1). Generally very low over almost all of the City.

(2). None in the east part of the City, east of Hawthorne Boulevard.

(3). Very low to moderate where steeper slopes are present in central parts of the City.

f). Soil-related problems

Generally low, but areas of expansive soils and uncompacted fill, however, will require appropriate attention for future development.

The existing and inventoried geotechnical data base is considered adequate for the purposes of the present seismic safety study. However, more detailed investigation may be required if and when new development or redevelopment is planned in areas of higher risk.

2. Impact Assessment

a.) Fault Risks

The Chief geotechnical and seismic hazard in the City of Hawthorne is the presence of the nearby active Newport-Inglewood fault zone. The maximum probable earthquake from this zone can give rise to high intensities on the Modified Mercalli scale, not only in Hawthorne, but also over a great part of the Los Angeles basin. This risk, however, is considered tolerated or acceptable mainly because evacuation or abatement measures for nearly all existing structures is unnecessary or impractical. Moreover, the risk is minimized by the fact that no geologically young deposits have been found associated

with this fault zone. This led to disagreement among geologists as to whether or not the Newport-Inglewood fault zone should be designated a special zone under the Alquist-Priolo Geologic Hazard Zones Act. The Charnock fault which passes underground through the City of Hawthorne is not considered as great a risk as the proximity of the main fault. First, because the Charnock fault is a subsidiary segment of the Newport-Inglewood fault zone and, second, because there is some question as to the existence of movement in recent geologic years.

b). Water table

A second potential hazard in the City of Hawthorne is the existence of a perched water table within approximately 50 feet of the surface beneath a small portion of the extreme southern half of the City. This results in a relatively higher risk from liquefaction, as compared with the remainder of the City, in the event of a sufficiently strong earthquake. Because the southern part of the City is developed, the liquefaction potential could be designated a tolerated risk. Abatement measures may require the installation of drainage systems in critical areas, and the promotion of public awareness of the risks. New development, especially of the more important structures, should be carefully sited and controlled, because of this hazard. Evidence shows that perched water tables are widespread but non-contiguous throughout the coastal plain and that their levels fluctuate with the wetness or dryness of the season. This means a

lesser risk for some localities within the same hazard area and an overall lessening of the risk in dry seasons.

c). Building Abatement Program

A hazardous-building abatement program should be pursued with priority given to the area within the liquefaction hazard zones and to the areas within the fault zones within the City.

No substantive changes are believed necessary in the present 1973 Uniform Building Code or other development regulations with reference to ordinary types of construction. However, special consideration for the important and critical-use structures is warranted. The Building and Fire codes and other regulations should be reviewed periodically and revised, if necessary, to reflect the current technology and the latest geotechnical data as it becomes available. In addition, nonconforming structures should be brought up to present code standards.

d). Infrastructures

Because of the geologic and seismic hazards affecting Hawthorne, the identifiable infrastructural elements, such as freeways, major highways and thoroughfares, major storm drains and utility corridors are particularly vulnerable to serious damage and impairment from earthquakes, ground shaking and liquefaction. Special contingency measures for emergency plans, therefore, are necessary. Those structures within the areas of highest relative liquefaction potential and seismic ground response will need to be evaluated on an individual basis by the responsible agency involved to assess the adverse impacts.

e). Water Storage Facilities

No dams or reservoirs are close enough to the City of Hawthorne to constitute a hazard from seismic activity. Two water storage towers and six water tanks exist within the City but are not considered seismically or geotechnically unsafe. In the event of complete collapse during an earthquake, the capacities, locations, and ground slopes are such that, except for the initial surge in the immediate vicinity of the towers and tanks, no erosion of exposed soil will take place. The areas within 100 to 200 feet of the tanks should be kept free and clear of other structures. Routine monitoring of these tanks for leakage on a periodic basis is advisable, particularly after earthquakes.

STATEMENT OF GOALS AND PUBLIC POLICY

A. Goals and Policy

1. Goals

Goals of the Seismic Safety and Public Safety Elements for the City of Hawthorne provide a link between the identified problems and issues and the policies and implementation measures which follow. They provide basic guidelines for City decisions related to seismic and other geologic hazards and assets pertaining to land-use planning and development standards. The following are recommended major goals for adoption by the Hawthorne City Council:

a). To protect life, property, and public well being from seismic and other geologic hazards.

b). To reduce or avoid adverse economic, social, and environmental impacts caused by seismic and other geologic conditions.

2. Policy

Policies provide a general basis for more specific steps for achieving the stated goals through implementation and action programs. The following are recommended policy statements:

a). Standards

To maintain, revise, and enforce existing standards and criteria to reduce or avoid all levels of seismic or other geologic risk, whether it be unacceptable, tolerated, or avoidable risk.

b). Risk Reduction

To encourage the reduction of risks associated with hazardous old buildings through action programs including, but

not limited to, rehabilitation, occupancy reduction, removal and demolition.

c). Zoning Compatibility

To evaluate the compatibility of existing zoning, as well as future land-use allocation, with seismic and geologic hazard risk areas.

d). Safety

To recognize the need to provide greater safety for the important or critical-use structures, such as hospitals, schools, churches, public assembly facilities, water storage facilities and utility corridors, through careful site selection, appropriately comprehensive site investigation, and enforcement of all applicable codes, rules, ordinances and regulations.

e). Development Prohibition, etc.

To prohibit or discourage the development of important or critical-use structures in areas of high liquefaction potential and in active or potentially active fault zones, unless other suitable areas cannot be located and said areas are known to be safe for the intended use.

f). School Programs

To advocate improved seismic safety programs for schools and to promote the general publics awareness of seismic and geotechnical hazards.

g). Other Jurisdictions

To improve cooperation and communication between jurisdictions in regard to seismic safety aspects related to

water reservoirs, highway and freeway structures, fault studies, legislative matters, and disaster and emergency plans.

h). Earthquake Insurance

To advocate improved earthquake insurance programs.

B. Risk Definition and Mitigation

In order to evaluate the adequacy of existing codes, regulations, or practices used to reduce or avoid seismic and other geologic hazards, it is necessary to relate and define relative risk levels with specific seismic and geologic hazards. The several types of risks discussed and defined, for the purposes of this report, include acceptable, unacceptable, avoidable, and tolerated risk.

1. Unacceptable and Avoidable Risk

Geologic and seismic hazards in this category include those which pose the most serious threat to life, property, and existing structures, where no effective regulatory control exists to require abatement of the hazard. An unacceptable risk, for example, could be an old earthquake-vulnerable school building located on an active fault. A well-constructed one-story wood frame residence, however, located in an active fault zone would be a less severe risk, but also would be categorized as unacceptable. A prime example of an unacceptable risk could be an impending landslide that could bury a residence or other habitable structure for which there is no regulatory control to prohibit its occupancy. In general, such hazards are avoidable risks which can and should be mitigated in the planning or construction stages of development, either by prohibiting construction within the

slide area or fault zone, or by eliminating the risk with corrective grading or other stabilization measures.

2. Tolerated and Acceptable Risk

Between the extremes of the risk scale, 'unacceptable' at one end and 'acceptable' at the other end, there are varying degrees of relative risk. These are less clear-cut situations, such as a suspected slide or a potentially active fault, which may or could pose a threat to existing or future improvements. A similar situation is the potential hazard of liquefaction which underlies a site. Although these may be equally unacceptable risks, such factors as the probability of occurrence at a site and the importance or value of a structure or land use results in the degree of risk unacceptability. Toward the acceptable risk end of the scale there may be other presently unrecognized hazards, either because of the lack of information or the capability to detect the hazard.

There appears to be no concensus for the definition of acceptable risk for the purposes of categorizing the various geotechnical hazards in land-use planning. Those considered most unacceptable can be identified and mitigated, if possible, or restricted from future use. Those remaining risks, therefore, are placed in the category of tolerated or acceptable risks, without any rigid distinction between the two.

3. Criteria for Decision-Making Related to Risk

The following factors should be considered in evaluating risk.

a). Severity of potential losses

Seismic and other geologic impacts including loss of life,

injury, property damage, loss of function, and hidden costs have to be considered.

b). Risk reduction capabilities

Consideration has to be given to current technological capabilities, available fiscal and manpower resources, and established priorities.

c). Probability of loss

The probability of loss from future seismic and other geologic occurrences has to be evaluated because of their effect on structures and human activities.

IMPLEMENTATION PROGRAMS

The implementation of the seismic element of the General Plan is as vital to accomplishing the primary aims and goals as are the identification of the seismic and geologic hazards and the state of policies. Recommended actions relating to existing programs which may have application and strategy options, major land-use concerns, and specific land-use planning and development control implications are as follows:

A. Existing Programs

The following ordinances, codes and programs have application to problems identified in this element:

1. City of Hawthorne
   a). The Zoning Ordinance
   b). The Uniform Building Code
   c). The Hawthorne General Plan and its Elements
   d). The Disaster or Preparedness Plan
2. County of Los Angeles
   a). The Seismic Safety and Public Safety Elements of the General Plan.
   b). The Zoning Ordinance and Building Code as they pertain to the City of Hawthorne's sphere of influence.
   c). The Cooperative Mapping Program with the California Division of Mines and Geology and the U. S. Geological Survey.
3. State of California
   a). Mapping and Evacuation Plans
   b). Active Fault Mapping

c). Alquist-Priolo Hazards Zone Act

d). General Geologic Mapping

e). School Safety Codes

4. Federal Government and Other Agencies

a). U. S. Geological Survey Mapping and Earthquake Research and Monitoring

b). Department of Housing and Urban Development-Research Funding

c). Los Angeles and Orange Counties Earthquake Planning and Response Project and Guide

d). University and College Research Studies on Geologic Hazards

B. Hazard Reduction Methods

The three (3) methods of mitigating seismic and geologic hazards are as follows:

1. Hazard Abatement

This is the most positive method of hazard reduction, but it is also the most controversial as its purpose is the elimination of existing hazards and usually at the expense of the owners. Demolition, removal and rehabilitation of old earthquake-vulnerable buildings have significant negative social impacts including the relocation requirements associated with abatement.

2. Hazard and Impact Reduction

This method provides rules and regulations to minimize the adverse effects of future earthquakes and other geologic disasters on existing and future developments. It involves reactive programs, such as emergency or contingency

plans or the up-grading of building and development standards to minimize possible adverse effects in case of disaster.

3. Hazard Avoidance

The most important method at the land-use planning stage is that of hazard avoidance. With the knowledge of the various types and severity of hazards within a planning area, those land uses most compatible with the risk can be matched, thereby avoiding unacceptable risk areas or limiting them to the least important land use.

C. Setting Priorities

In order that adequate judgments can be made regarding allocation of limited funds to the most critical areas or problems the following criteria for establishing priorities should be used:

1. Significant and impending threats to human life and safety
2. Unacceptable levels of potential economic loss
3. Potential for widespread social disruption
4. Significant threats to future populations and development
5. Problems which are not likely to result in adverse impacts

D. Implementation Measures

1. Earthquake-Hazardous Old Buildings

Buildings and structures in the City of Hawthorne which may be identified as earthquake-hazardous should be condemned, demolished or removed. Action needs to be taken to identify all of such structures in the City and to abate the hazard, either by condemnation, demolition, removal or by repair and rehabilitation to acceptable safety levels. The following outlines general criteria for identifying and evaluating existing structural hazards:

"HAZARD COMPARISON OF NON-EARTHQUAKE-RESISTIVE BUILDINGS AND STRUCTURES

Simplified Description of Structural Types	Relative Damageability, In Order Of Increasing Susceptibility To Damage
a). Small wood-frame structures, not over 3,000 square feet in area and not over 3-stories in height.	1
b). Single and multistory steel-frame buildings with concrete exterior walls, concrete floors, concrete roof and moderate wall opernings.	1.5
c). Single and multistory reinforced-concrete buildings with concrete exterior walls, concrete floors, concrete roof and moderate wall openings.	2
d). Large wood-frame buildings over 3,000 square feet in area and over 3-stories in height	3 to 4
e). Single and multistory steel-frame buildings with unreinforced masonry exterior wall panels, concrete floors, concrete roof and extensive wall openings.	4
f). Single and multistory reinforced-concrete frame buildings with unreinforced masonry exterior wall panels, concrete floors, concrete roof, and extensive wall openings.	5
g). Reinforced concrete bearing walls with supported floors and roof of any materials, but usually wood.	5
h). Buildings with unreinforced brick masonry having sandlime mortars with supported floors and roof of any materials, but usually wood.	7 up
i). Bearing walls of unreinforced adobe, unreinforced hollow concrete block, or unreinforced hollow clay tile.	Collapse hazards in moderate shocks

Additional considerations for hazard comparison should include parapets, building interiors, utilities and building orientation and frequency response".

2. Survey of Existing Important Structures. A comprehensive survey should be made of fire stations and all other public and private buildings that are essential to relief and emergency operations after a disaster, to determine if remedial measures are required to assure their continued functioning following a strong earthquake. In addition, all such building locations need to be surveyed to determine if they are located in potential ground shaking and liquefaction zones.

Individual sites, buildings, structures and facilities were not specifically evaluated for this element. Further investigation and survey regarding compliance with current structural standards for aseismic design is required to verify the site, building, structure and facility safety for relief, emergency and disaster use.

3. Geotechnical Investigation Requirements for Construction of Important Structures. Detailed geologic, seismic and soil engineering reports should be required for all of the following types of structures and facilities in all seismic zones:

a). Facilities Vital in Emergencies

1. Hospitals and other medical facilities having surgery or other emergency treatment areas.
2. Fire and police stations.
3. Municipal government disaster operation centers.
4. Municipal government and other communication centers deemed to be vital in emergencies.
5. Schools and churches.

The above facilities, buildings and structures must be safe and usable for emergency purposes after an earthquake

in order to preserve the peace, health, welfare and safety of the general public and therefore they deserve greater care in site evaluation and more conservative design than for ordinary construction. Investigation and aseismic design requirements for these facilities should be implemented by adopting an ordinance similar to Los Angeles County Ordinance No. 10717, which amended the Los Angeles County Building Code for those reasons.

b). Other Important Structures

Also recommended for consideration are the following types of facilities which should also require detailed reports and special design considerations:

1. Critical-use facilities such as power intertie systems, linear and other major infrastructure systems and factories manufacturing and storing explosives, toxic, or highly flammable products.
2. High-cost facilities such as certain public use facilities involving large expenditures of money. A suggested criterion for determining a high-cost facility is one having a total building expenditure of $1,000,000 or more, such as a major retail shopping complex.
3. High-occupancy facilities such as any building having occupancy levels that are considered critical from a seismic safety standpoint. An occupancy level of a building in excess of 400,000 man-hours per year is suggested as a criterion.

4. Aseismic Design Consideration for New Construction. Conformance with the 1973 Edition of the Uniform Building Code is considered

adequate for ordinary construction. The City of Hawthorne should effect the adoption of this edition of the Uniform Building Code. The Director of Building and Safety should require that certain of the more important, vital and critical-use structures have more conservative seismic design parameters that are based on the maximum credible earthquake rather than the maximum probable earthquake. Other, less important uses, such as certain utilities and roads, need only to be designed for maximum probable earthquakes as are the ordinary types of construction. Determination of the seismic design parameter for a maximum credible earthquake will require independently derived data based on specific site conditions and the type of construction proposed. A design response criteria delineated in the 1973 Edition of the Uniform Building Code and supplemented by the revisions of April, 1974 should be required as a basis for aseismic design for the City of Hawthorne.

5. Liquefactions, Seismic and other Geologic Hazards Related to New Construction

With reference to liquefaction, seismic and other geologic hazards in future development, only the liquefaction hazard appears warranted for residential tract development, high-cost facilities, and important or critical-use structures located in a potential liquefaction zone.

The Charnock and Newport-Inglewood faults do not come under the jurisdiction of the State Alquist-Priolo Hazards Zone Act provisions, which determine investigation standards and set-back requirements. It has been recommended by State Geology

officials that the Newport-Inglewood fault zone will be officially delineated under the provisions of the Alquist-Priolo Act in the 1975-1976 fiscal year. Certain informed sources indicate, however, that because of the nature of this particular fault zone it may not be feasible or practical to delineate the zone under said Act.

At the discretion of the Director of Building and Safety, development of the more important land uses within the two fault zones identified in Hawthorne could be required to comply with the State requirements for the evaluation of the ground rupture hazard associated with active or potentially active faults. The State criteria prohibits construction of habitable structures across potentially active faults and multiple fault lines within the zone and require a minimum setback of 50 feet from such faults unless specifically approved by a registered geologist. With the present knowledge and under current circumstances, implementation of this option in the City of Hawthorne by the Director of Building and Safety is considered unnecessary.

6. Existing Structures and Improvements Within Fault Zones in the City

Although the Charnock fault is possibly active, no evacuation or special abatement measures are recommended for structures within this zone. This is primarily because of the uncertainty of the degree of ground rupture hazard within the zone. The Charnock fault is considered part of the active Newport-Inglewood zone, and may have associated with it an epicenter of historically low magnitude (3+) earthquakes. The Charnock

fault is considered active by some sources and as potentially active, only, by others. This fault is therefore, classified as possibly active more for reasons of conservatism and safety rather than on the basis of established risk. All property owners within the zone, however, should be made aware of the potential risk, and any new construction of critical facilities should be outside of these zones, if possible.

7. High Rise Structures

The siesmic problems related to high-rise structures are primarily evacuation procedures and fire control. This problem is not a major one in the City of Hawthorne. Hawthorne is principally a residential community with one, two and three-story family and multiple-family dwellings together occupying more than half the total acreage of the City. However, the proposed commercial structures in the Hawthorne Plaza Project which will exceed three (3) stories in height should be reviewed with evacuation and fire control consideration in mind.

8. Water Tank Safety

The water tanks within the City are maintained by the City and the Southern California Water Company. Since they are kept filled, risk evaluation should be based on full tank capacity.

9. Schools

The 1933 Field Act established minimum earthquake safety standards for school construction. Legislation passed in 1968 and recently modified in 1974 prohibits the use of seismically hazardous school facilities after 1977. Information from the Hawthorne, Wiseburn and Centinela Valley Union

High School Districts state that all the schools within their districts have only post-1933 buildings and fully comply with the Field Act. The private schools located inside the City limits also comply with the Field Act. The distribution of schools, both public and private, within the City indicates that none are inside the zone of potential liquefaction hazard. It is recommended that the Board of Trustees and Administration of the school districts be made aware of the Seismic Element since authority for taking any corrective or preventive action in the public schools is their responsibility, not the City of Hawthorne. In the case of the private schools, the City should monitor the compliance of buildings with both the Field Act and the Uniform Building Code seismic safety requirements. Any proposed new school construction may require special geologic, seismic and soil engineering investigation of the site to evaluate the seismic and the geotechnical hazard, as provided for under the State Education Code.

10. Evaluation of Industries or Facilities Susceptible to Seismically-Caused Accidents

The City of Hawthorne should adopt an ordinance defining hazardous industries and types of facilities susceptible to potentially serious accidents resulting from seismic and other geologic activity. Appropriate authority to inspect such facilities and to enforce adopted regulations and standards should also be enacted. It will be necessary to conduct surveys to evaluate potential seismic and other geologic hazards and to recommend guidelines and procedures for the safe handling, processing, manufacture, and storage of dangerous materials.

11. Disaster Planning

The City of Hawthorne should include within its Civil Preparedness Disaster Plan the following procedures if a significant magnitude earthquake occurs:

a). Mobilization of rescue, medical, communication, and other personnel and facilities.

b). Designation of key persons, their responsibilities, and channels of direction.

c). Evacuation and rescue operations.

d). Emergency food, water and medical supplies.

e). Emergency shelter.

f). Repair and restoration of utilities and other essential services.

g). Cleanup of hazardous debris.

h). Inspection of vital and other structures to determine whether or not they are safe to reoccupy.

i). Protection of property, prevention of lawlessness under conditions of physical and social stress.

j). Communication of information to public to maintain public order.

k). Other aspects that may be of particular or unique application to the City of Hawthorne.

Because the greatest potential geologic hazard to the City of Hawthorne is from activity on the Newport-Inglewood fault zone, and because estimates show a large earthquake on this fault zone would severely affect a wide area in all directions from Hawthorne, it is recommended that the City work with other cities in this area to prepare a regional plan for mutual assistance. This will provide for the most efficient use of emergency resources in mitigating the effects of a large earthquake.

It is also recommended that a program of public education and awareness regarding the seismic hazard be instituted so as to allow the individual citizen to react most sensibly in such an emergency.

12. Review and Revision

The City should review the Seismic Safety Element at least every five years to incorporate the results of new knowledge, to revise and improve existing provisions and to eliminate provisions that may be outdated.

ENVIRONMENTAL IMPACT REPORT

CITY OF HAWTHORNE SEISMIC SAFETY ELEMENT

This report has been prepared in accordance with the latest CEQA (California Environmental Quality Act) and CIR (Council on Intergovernmental Relations) guidelines.

I

PROJECT DESCRIPTION

The project consists of the Seismic Safety Element dated July, 1975 for the City of Hawthorne General Plan. The study area includes the incorporated city boundaries and its sphere of influence, an area of approximately six (6) square miles. The primary goals sought by the project are the protection of life, property, and public well-being from hazardous seismic and other geologic effect and the reduction or avoidance of adverse economic, social, and enviornmental impacts caused by said seismic and other geologic conditions. To accomplish these goals, policies are formulated and an integrated set of actions is recommended for implementation of the policies.

The report includes a review of seismic and other geologic conditions in the study area. The following geologic and seismically-induced hazards were evaluated for the study area: possible ground rupture along active and potentially active faults, seismic ground shaking caused by earthquakes and liquefaction potential. Major findings include the identification of two possibly active fault traces traversing the study area: the Charnock fault and a segment of the Newport-Inglewood fault zone.

The results of the geotechnical analysis and review are shown on two maps: a map showing Important Structures and Facilities and their proximities to the Newport-Inglewood and Charnock fault zones; and a map showing the location of major sub-structures and their proximities to the two fault zones.

II

ENVIRONMENTAL SETTING

The City of Hawthorne is located approximately 14 miles southwest of Los Angeles Civic Center in the middle of the Los Angeles Coastal plain. Approximately 96 percent of the land in the city is developed, reflecting its highly urbanized nature. New growth and development in the city is limited by the unavailability of vacant land. Future growth will result from demolition of older structures to allow a more intense utilization of the land. Population of the study area is approximately 56,000 and is not expected to increase significantly. The city is primarily a residential community, with a balance of commercial, industrial and public facilities in evidence.

The study area topography is very flat. Generally, the land slopes toward the west in the northern portion of the study area; in the southern portion, the land slopes toward the south and east. The climate is classified as dry-summer Mediterranean. Rainfall averages approximately 15 inches per year. Temperatures are mild: the average January temperature is about 51°, and the average July temperature is about 68°. The climate in the Hawthorne area is further modified by the cool, onshore breezes from the Pacific Ocean, only four miles away.

The City of Hawthorne is located in the Peninsular Ranges province of California. The underlying bedrock consists of several thousand feet of Tertiary and Quaternary sedimentary rocks resting on a crystalline, metamorphic basement of presumably Mesozoic age. The surficial materials in the Hawthorne area consist entirely of unconsolidated alluvial and terrace deposits. The entire area adjoins

the Newport-Inglewood zone of deformation, a zone of faulting and folding that has been the source of considerable historic seismic activity. The Charnock fault crosses the central portion of Hawthorne in a northwest-southeast direction. It is associated with the Newport-Inglewood zone, but its nature of activity is undertain.

III

ENVIRONMENTAL IMPACTS

The Seismic Safety Element for the City of Hawthorne includes a statement of goals and policies and a recommended implementation program. The following discussion presents the environmental impacts that might be expected from implementation of the policies recommended for adoption by the city.

A. General

1. Policy

To maintain, revise and enforce adequate standards and criteria to reduce or avoid all levels of seismic or other geologic risk, whether it be unacceptable, tolerated, or avoidable risk.

2. Impact

Reduction of seismic and geologic risk will have a long-term positive impact on the community. Adoption of adequate standards coupled with an implementation program to reduce risk will require commitment of significant funds by the City Council. Economic losses resulting from earthquake damage will be significantly reduced by this action and loss of life and psychological trauma will be minimized.

B. Hazardous Buildings

1. Policy

To encourage the reduction of risks associated with hazardous old buildings through action programs of rehabilitation, occupancy reduction, demolition and removal.

2. Impact

Reduction of risks associated with hazardous old buildings will have a positive impact on the environment of Hawthorne. Injury and loss of life will be minimized. Anticipated community redevelopment programs should take this policy into account, because it will be an effective vehicle for implementing the policy. Enactment of this policy will require a commitment of funds on the part of the local government. However, prevention of losses should more than offset the costs incurred. Temporary negative impacts would be those associated with most construction activities. These would be mainly noise, dust, and impairment of pedestrian and vehicular traffic.

C. Land Use Allocation Zoning

1. Policy

To evaluate the compatibility of existing zoning as well as future land-use allocation with known seismic and other geologic risk zones and those which may be identified in the future.

2. Impact

Wise and safe use of the land is promoted with the adoption and implementation of this policy. It should be recognized, however, that the hazards described in the Seismic Safety Element for the City of Hawthorne entails no unacceptable risks. At worst, known risks are rated as tolerated. Because the City of Hawthorne is almost completely developed any higher risk acreage of the city is already in open-space

or low-occupancy usage. Zoning changes to conform with this policy and their impacts are expected to be minimal.

Expanding open space areas could have a negative economic impact by reducing tax revenue for the City. However, acquisition of more open space could enhance the environment of the city and make it a more pleasant place to live, which could increase property values so as to offset the negative impact.

In more hazardous areas, primarily those areas involving important structures, the land use may be conforming but the character of the structure may demand greater care in site preparation, site investigation, and other extraordinary operations not required in less hazardous areas. These considerations may result in negative economic impacts, but the additional safety investment will compensate.

In general the impact of this policy will be positive because it will provide greater protection for life and property, maintain desirable open space, and provide for a desirable diversity of land use and tax base among residential, commercial, industrial, and open-space areas.

D. Safety

1. Policy

a). To provide greater safety for important or critical use structures through careful site selection, comprehensive site investigation, and enforcement of applicable codes and regulations; and

b). To prohibit and restrict development of important and critical-use structures in areas of high liquefaction potential and in active fault zones, unless no other suitable site can be located and the site is known to be safe for the intended use.

2. Impact

This policy will provide greater protection to the general public by requiring seismically safe buildings, especially major structures, either by appropriate construction regulation or avoidance of hazardous sites. The impact of the adoption of this policy will be positive, although in the course of modifying land prior to construction by grading or excavation the natural topography may be rearranged. It is recognized that initial development costs for such structures may increase from implementation this policy.

E. Seismic Safety Programs

1. Policy

To advocate improved seismic safety programs for schools and to promote greater general public awareness of all types of seismic and other geotechnical hazards.

2. Impact

Implementation of this policy will facilitate public acceptance of land-use plans which are sensitive to environmental concerns and seismic and other geologic hazards. Awareness on the part of the public of proper precautions to take before, during and after an earthquake can greatly reduce

the loss of life and property as well as reducing the degree of panic, should an earthquake occur. Although there is no immediate direct impact on land-use planning or on environmental resources, the long-term benefits accruing from education of the citizenry is beneficial.

F. Interjurisdictional Cooperation

1. Policy

To improve interjurisdictional cooperation and communication in regard to seismic safety aspects relating to dams, reservoirs, highway and freeway structures, regional fault studies, legislative matters, and disaster response or emergency plans.

2. Impact

Adoption of this policy has no direct environmental impact, but the benefits can not be overlooked. One of the principal concepts of the science of ecology is the inter-relationship between all living things and their non-living surroundings. Mutual cooperation between jurisdictions will enhance social and environmental benefits and eliminate duplicative efforts resulting in the economic savings derived from joint studies. The possibility that in a strong earthquake injuries may be more severe and important and critical-use structures may suffer more destructive damage in one community than in its neighboring community requires area-wide cooperation for the best, most prompt, and most efficient emergency response.

G. Earthquake Insurance

1. Policy

To advocate improved earthquake, landslide and flood insurance programs for the City.

2. Impact

In case of damaging earthquakes, landslides, and floods, social and economic losses could be reduced significantly by providing appropriate insurance at reasonable costs. This policy, however, has no direct impact on the environment.

IV

ENVIRONMENTAL EFFECTS, MEASURES AND ALTERNATIVES

A. Unavoidable Adverse Effects

The Seismic Safety Element specifies no absolute restrictions on development because of seismic and other geologic hazards. It does delineate those areas generally suited to the highest and best land uses. Therefore loss of life, injury, property damage and social dislocation are not precluded in the event of a severe earthquake which could affect existing and future structures. However, this element is intended to help minimize environmentally harmful or geotechnically incompatible development in Hawthorne and its sphere of influence. Its value will depend on how effectively and rapidly the recommended policies and actions are implemented.

B. Mitigating Measures

It is redundant to propose mitigation measures to the Seismic Safety Element, because mitigative strategies are already significantly indicated in said element which are beneficial impacts. However, some legislative implementation measures designed to mitigate seismic hazards may not have the total support of the community because of property development restrictions which may result.

C. Alternatives

The only alternatives to the Seismic Safety Element are "no element" or complete "elimination of all hazards entirely." Complete elimination of all hazards is not feasible or practical because of

current knowledge and expertise in earthquake control and prediction. The alternative of "no element" is also not feasible or practical because nothing could be done legally to regulate development in seismic and other geologic hazard areas of the City, thereby increasing the probable loss of life and property as a result of an earthquake. The Seismic Safety Element for the City of Hawthorne is mandated by California State law, which obviously means that there are essentially no alternatives in seismic activity areas.

D. Short-Term Use and Long-Term Productivity

The Seismic Safety Element for the City of Hawthorne provides the means for evaluating developments in areas with seismic and nonseismic problems and how to provide means to minimize these problems. On this basis, the short-term uses of hazardous lands may be limited, but in the long run public safety will be increased.

E. Irreversible Environmental Changes

There appears to be no irreversible environmental changes that will result from adoption of the Seismic Safety Element for the City of Hawthorne.

F. Growth-Inducing Impact

It appears the Seismic Safety Element for the City of Hawthorne may reduce or inhibit growth because some contemplated developments will not be feasible because the implementation of some of the policies in said Element. However, development and growth may be redirected to other areas in the City which would neutralize total growth impact. When the building abatement program for seismically

unsafe structures is determined to be necessary and is implemented, greater growth in the City could result because existing areas subject to redevelopment are normally redeveloped to higher densities. Because of this, growth contemplated initially in hazardous areas should be channelled to proposed redevelopment areas. The growth-inducing impact, therefore, could be neutralized.

G. Water Quality Impact

Implementation of the Seismic Safety Element goals and policies will have no impact upon the water quality of the City of Hawthorne.

The Environmental Impact Report for the Seismic Safety Element for the City of Hawthorne was prepared by the Director of Planning and his staff.

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KANKAKEE, ILL.